

Telephone: 086 12 DALRO
(from within South Africa):
+27 (0)11 712- **Telefax:**
+27 (0)11 403- **Postal**
address: P O Box 31627,
Braamfontein, 2017, South
Africa dalro.co

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Box 13194, Mowbray,
7705 Tel (021) 462 3572
Fax (021) 462 3681 E-
mail:
info@futuremanagers
Website: futuremanagers**

N2 Electrical Trade Theory
Lecturer Guide v

Lecturer guidance

1. General aims

e general aims
of this course is to equip
students with relevant
theoretical

knowledge to
enable them to integrate
meaningfully into:

- an electrical
apprenticeship;
- an electrical
learnership;
- an electrical
contracting
environment; or
- a power utility
environment.

2. Specific aims

Students should
acquire in-depth knowledge

of the following subject
outcomes:

- Alternating current
circuit theory
- Conductors,
insulators and
cables
- Electrical
reticulation
- Switchgear and
protective devices
- Batteries
- Direct current
machines
- Alternating current
machines
- Transformers
- Earthing
- Measuring
instruments
- Renewable energy.

3. Prerequisite

Students must
have passed N1 Electrical
Trade eory.

4. Duration

e duration of
this course is one trimester
full-time or part-time.

5. Evaluation

5 Trimester
mark

Students will
write TWO formal class
tests and must obtain a
minimum trimester

mark of 40% in
order to qualify to write the
nal examination. e trimester
mark

shall be
calculated as follows:

Trimester mark
= 30% of Test 1 + 70% of
Test 2

Electrical Trade Theory

Lecturer Guide

ELECTRICAL TRADE THEORY

**Tommy Ferreira, Trevor
Adams**

& Jan Randewijk

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criminal sanctions.

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6. General information

e regulations as
prescribed in the South
African National Standard

(SANS 10142-
1), as amended, must be
used with each relevant
section of this

curriculum.

All symbols and
units of measurement must
be in accordance with the
following:

- IEC (International
Electrotechnical
Commission)
- SI (International
System of Units).

Practical
examples, realistic values
and current data must be
used in all calculations

and
explanations.

Neat, fully
labelled and large drawings
must be presented when
such are required.

Students'
artistic ability is not to be
evaluated.

Students should
be encouraged to provide in
their answers the number of
facts

according to the
number of marks allocated.

For calculation-
type questions, the following
must be done:

- State the formula to
be used.
- Show the
substitution.
- Round off all
answers to three
decimal places.
- Show the SI unit.

7. Work schedule

Week Topic Content Hours
1 **Module 1** Alternating
current theory

1 Dynamically induced emf
1 Statically induced emf 1 e
power triangle 1 ree-phase
circuits

10 hours

2 **Module 2** Conductors,
insulators and cables

2 Conductors 2 Insulators 2
Cables

10 hours

3 **Module 3** Electrical
reticulation

3 Reticulation networks 3
Generation 3 Transmission 3
Distribution

10 hours

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Week Topic Content Hours
4 **Module 4** Switchgear and
protective devices

4 Switchgear 4 Switchgear -
isolating 4 Switchgear -
control 4 Protective devices

10 hours

5 **Module 5** Batteries

5 Gel batteries 5 Lead-acid
battery 5 Lithium-ion
batteries

10 hours

6 **Module 6** Direct current
machines

6 Function and construction
6 Operation of DC motors 6
Operation of DC generators

10 hours

7 **Module 7** Alternating
current machines

7 Types of AC machines 7
Single-phase motors 7 ree-
phase induction motors

10 hours

8 **Module 8** Transformers

8 Function and construction
of a single- phase
transformer 8 Operation 8
ree-phase transformers

10 hours

9 **Module 9** Earthing

9 e earthing chain 9
Earthing of overhead lines 9
Earthing of underground
cables

10 hours

10 **Module 10** Measuring
instruments

10 Low-voltage
measurement 10 High-
voltage measurement 10
Range extension 10 Digital
measuring instruments

5 hours

Module 11 Renewable
energy

11 Renewable energy 5
hours

TOTAL 100 hours

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LESSON

CONTENT/OUTCOMES TO BE COVERED THIS WEEK

LIST OF EXAMPLES TO BE DONE IN CLASS BY THE LECTURER TO EXPLAIN THE OUTCOME/CONCEPT

FACILITATION

METHOD (PLEASE TICK)

TEACHING RESOURCES/AIDS

(PLEASE TICK)

STUDENT ACTIVITY

(EXERCISE IN

TEXTBOOK/ADDITIONAL SUPPORTING TASK) TO BE DONE THIS WEEK

WEEK 1

Lecture

White board/OHP

Group work

Models

Demonstration

Handouts

Simulation

Multimedia

INTRODUCTION TO LESSONSRECAPING/REINFORCEMENT

N2 Electrical Trade Theory Lecturer Guide xi

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LESSON

CONTENT/OUTCOMES TO BE COVERED THIS WEEK

LIST OF EXAMPLES TO BE DONE IN CLASS BY THE LECTURER TO EXPLAIN THE OUTCOME/CONCEPT

FACILITATION

METHOD (PLEASE TICK)

TEACHING

RESOURCES/AIDS

(PLEASE TICK)

STUDENT ACTIVITY

(EXERCISE IN

TEXTBOOK/ADDITIONAL SUPPORTING TASK) TO BE DONE THIS WEEK

WEEK 2

Lecture

White board/OHP

Group work

Models

Demonstration

Handouts

Simulation

Multimedia

INTRODUCTION TO LESSONSRECAPING/REINFORCEMENT

N2 Electrical Trade Theory Lecturer Guide xiii

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LESSON

CONTENT/OUTCOMES TO BE COVERED THIS WEEK

LIST OF EXAMPLES TO BE DONE IN CLASS BY THE LECTURER TO EXPLAIN THE OUTCOME/CONCEPT

FACILITATION

METHOD (PLEASE TICK)

TEACHING

RESOURCES/AIDS

(PLEASE TICK)

STUDENT ACTIVITY

(EXERCISE IN

TEXTBOOK/ADDITIONAL SUPPORTING TASK) TO BE DONE THIS WEEK

WEEK 4

Lecture

White board/OHP

Group work

Models

Demonstration

Handouts

Simulation

Multimedia

INTRODUCTION TO
LESSONSRECAPPING/REIN
FORCEMENT

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photocopied.

LESSON

CONTENT/OUTCOMES TO
BE COVERED THIS WEEK

LIST OF EXAMPLES TO BE
DONE IN CLASS BY THE
LECTURER TO EXPLAIN
THE OUTCOME/CONCEPT

FACILITATION

METHOD (PLEASE TICK)

TEACHING
RESOURCES/AIDS

(PLEASE TICK)

STUDENT ACTIVITY

(EXERCISE IN

TEXTBOOK/ADDITIONAL
SUPPORTING TASK) TO BE
DONE THIS WEEK

WEEK 5

Lecture

White board/OHP

Group work

Models

Demonstration

Handouts

Simulation

Multimedia

INTRODUCTION TO
LESSONSRECAPPING/REIN
FORCEMENT

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photocopied.

LESSON

CONTENT/OUTCOMES TO
BE COVERED THIS WEEK

LIST OF EXAMPLES TO BE
DONE IN CLASS BY THE
LECTURER TO EXPLAIN
THE OUTCOME/CONCEPT

FACILITATION

METHOD (PLEASE TICK)

TEACHING
RESOURCES/AIDS

(PLEASE TICK)

STUDENT ACTIVITY

(EXERCISE IN

TEXTBOOK/ADDITIONAL
SUPPORTING TASK) TO BE
DONE THIS WEEK

WEEK 7

Lecture

White board/OHP

Group work

Models

Demonstration

Handouts

Simulation

Multimedia

INTRODUCTION TO
LESSONSRECAPPING/REIN
FORCEMENT

N2 Electrical Trade Theory
Lecturer Guide xvii

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LESSON

CONTENT/OUTCOMES TO
BE COVERED THIS WEEK

LIST OF EXAMPLES TO BE
DONE IN CLASS BY THE
LECTURER TO EXPLAIN
THE OUTCOME/CONCEPT

FACILITATION

METHOD (PLEASE TICK)

TEACHING

RESOURCES/AIDS

(PLEASE TICK)

STUDENT ACTIVITY

(EXERCISE IN

TEXTBOOK/ADDITIONAL
SUPPORTING TASK) TO BE
DONE THIS WEEK

WEEK 8

Lecture

White board/OHP

Group work

Models

Demonstration

Handouts

Simulation

Multimedia

INTRODUCTION TO
LESSONSRECAPING/REIN
FORCEMENT

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LESSON

CONTENT/OUTCOMES TO
BE COVERED THIS WEEK

LIST OF EXAMPLES TO BE
DONE IN CLASS BY THE
LECTURER TO EXPLAIN
THE OUTCOME/CONCEPT

FACILITATION

METHOD (PLEASE TICK)

TEACHING

RESOURCES/AIDS

(PLEASE TICK)

STUDENT ACTIVITY

(EXERCISE IN

TEXTBOOK/ADDITIONAL
SUPPORTING TASK) TO BE
DONE THIS WEEK

N1 Topics

N1 Electrical Trade Theory

[Open](#)

N1 Engineering Drawing

WEEK 10

Lecture

White board/OHP

Group work

Models

Demonstration

Handouts

Simulation

Multimedia

INTRODUCTION TO
LESSONSRECAPING/REIN
FORCEMENT

**This afternoon's online
lesson is based on the
Construction Level 2
subject for NC(V)
students.**

**The topic: Differentiation
Rules and Equation of
Tangents**

[Open](#)

[Open](#)

N1 Motor Trade Theory

[Open](#)

**This afternoon's online
lesson is based on the
Construction Level 2
subject for NC(V)
students.**

**The topic: Measuring and
Setting Out.**

[Open](#)

**This morning's online
lesson is based on the
Plant and Equipment
Level 3 subject for NC(V)
students.**

**The topic: Internal
Combustion Engine**

[Open](#)

**This morning's online
lesson is based on the
Fitting and Turning Level
2 subject for NC(V)
students.**

**The topic: Milling
Machine**

[Open](#)

**This morning's online
lesson is based on the
Mathematics Level 4
subject for NC(V)
students.**

**The topic: Integration
(Part 2)**

[Open](#)

N1 Industrial Electronics

[Open](#)

N1 Mathematics

[Open](#)

**N1 Bricklaying and
Plastering Theory**

[Open](#)

N1 Building Drawing

[Open](#)

**N1 Fitting & Turning
Theory Module 8**

[Open](#)

**N1 Fitting & Machining -
Module 14 - Centre
Lathes**

[Open](#)

N2 Topics

N2 Mathematics

[Open](#)

N2 Motor Trade Theory

[Open](#)

**N2 Electrical Trade
Theory**

[Open](#)

N2 Engineering Drawing

[Open](#)

N2 Engineering Science

[Open](#)

N2 Industrial Electronics

[Open](#)

**N2 Fitting & Machining
Theory - Module 10**

[Open](#)

**N2 Fitting & Machining
Theory V-Belts**

[Open](#)

**N1 Fitting & Machining
Theory Module 13
Cutting Tools**

[Open](#)

**N2 Electrical Trade
Theory - Module 6 -
Protection**

[Open](#)

**N2 Fitting & Machining
Theory - Module 14
Reduction Gearboxes**

[Open](#)

N3 Topics

N3 Engineering Science

[Open](#)

N3 Industrial Electronics

[Open](#)

N3 Mathematics

[Open](#)

N3 Mechanotechnology

[Open](#)

**N3 Electrical Trade
Theory**

[Open](#)

**N3 Mechanotechnology
Module 8**

[Open](#)

**N3 Mechanotechnology -
Module 10 Pneumatics**

[Open](#)

**N3 Electrical Trade
Theory**

[ZIP](#)

N4 Topics

N4 Industrial Electronics

[Open](#)

N4 Mathematics

[Open](#)

N4 Mechanotechnics

[Open](#)

N4 Child Health

[Open](#)

N4 Daycare Personnel

[Open](#)

N4 Electrotechnics

[Open](#)

**N4 Catering Theory and
Practical**

[Open](#)

**N4 Nutrition and Menu
Planning**

[Open](#)

N4 Sanitation and Safety

[Open](#)

N3 Electrotechnology

[Open](#)

N4 Human Resource Management

[Open](#)

N4 Introduction to Financial Accounting

[Open](#)

N4 Public Administration

[Open](#)

N4 Educare Didactics

[Open](#)

N4 Education

[Open](#)

N4 Computer Guide Practice Du Toit

[Open](#)

N4 Computer Practice De Villiers

[Open](#)

N4 Computerised Financial Systems

[Open](#)

N4 Entrepreneurship & Business Management

[Open](#)

N4 Financial Accounting

[Open](#)

N4 Education Module 1 Video

[Open](#)

L4 Systems Analysis & Design Topic 3

[Open](#)

N4 Mass Media Communication Part 1 - Video

[Open](#)

N4 Mass Media Communication Part 2 - Video

[Open](#)

N4 Mass Media Communication Part 3 - Video

[Open](#)

N4 Mass Media Communication Part 4 - Video

[Open](#)

N4 Mass Media Communication Part 5 - Video

[Open](#)

N4 Mass Media Communication Part 6 - Video

[Open](#)

N4 Education Module 1

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N4 Management Communication - Minutes of a meeting

[Open](#)

N4 Management Communication - Module 5

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N4 Management Communication - Module 6

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N4 Marketing Management Module 3

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Marketing N4 1 - Video

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Marketing N4 2 - Video

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Marketing N4 3 - Video

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Marketing N4 4 - Video

[Open](#)

Marketing N4 5 - Video

[Open](#)

Marketing N4 6 - Video

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N5 Topics

N5 Marketing Management Module 1

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N5 Marketing Management Module 2

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**N5 Marketing
Management Module 3**

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**N5 Marketing
Management Module 4**

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N5 Mathematics

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N5 Electrotechnics

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N5 Industrial Electronics

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N5 Sales Management

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**N5 Human Resource
Management**

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**N5 Human Resource
Training**

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**N5 Municipal
Administration**

[Open](#)

N5 Public Administration

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N5 Public Relations

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**N5 Computer Guide
Practice Du Toit**

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**N5 Computerised
Financial Systems**

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**N5 Cost and Management
Accounting**

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**N5 Entrepreneurship &
Business Management**

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N5 Financial Accounting

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N5 _ N6 Public Finance

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**N5 Daycare
Communication**

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**N5 Educational
Psychology**

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**N5 Sales Management
Module 10**

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**Office Practice N5 Topic
7 Insurance**

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**Office Practice N5 Topic
7 Tele Communication**

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**N5 Computer Practice
Theory**

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**N5 Sales Management
Module 6
Voice Note**

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**N5 Sales Management
Module 11**

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**N5 Computer Practice -
Mail Merge & Access**

[Open](#)

**N5 Marketing
Management**

[Open](#)

N6 Topics

**Information Process N6
Topic 9 Flow Charts**

[Open](#)

**LR N6 Module 3 -
Collective bargaining**

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N6 Electrotechnics

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N6 Mathematics

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N6 Daycare Communication

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N6 Municipal Administration

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N6 Public Administration

[Open](#)

N6 Public Law

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N6 Sales Management

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N6 Daycare Management

[Open](#)

N6 Human Resource Management

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N6 Human Resource Training

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N6 Income Tax

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N6 Marketing Communications

[Open](#)

N6 Marketing Research

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N6 Computer Practice

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N6 Computerized Financial Systems

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N6 Cost and Management Accounting

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N6 Entrepreneurship & Business Management

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N6 Financial Accounting

[Open](#)

N6 Educare Didactics

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N6 Psychology Module 3

[Open](#)

N6 Sales Management Voice Notes

[Open](#)

INFORMATION PROCESSING N6 financial statement (TOPIC 10)

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IP N6 FINANCIAL STATEMENTS

[Open](#)

Various Topics

Level 2

Maths Lit L2 Topic 2 Voice Note

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New Venture Creations L2 Topic 2 Summary Slide Show - Future Managers Mrs Strydom

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OFFICE PRACTICE LEVEL 3 LESSON 1.22

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L2 EBM Topic 2

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L2 Animal Production Poultry Feeding

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L2 New Venture Creation Module 1

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L2 New Venture Creation Module 2

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L2 New Venture Creation Module 3

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L2 English FAL - Business letters

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**L2-L4 English FAL
Intervention Exercises**

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**MacMillan L2 English
FAL Module 1**

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**MacMillan L2 English
FAL Module 2**

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**L2 Business Practice -
Topic 3**

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**L2 Business Practice
Module 10**

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L2 English FAL Module 3

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L2 Transport Economics

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**L2 Transport Operations -
Typical Operations across
various transport modes**

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**L2 Physical Science -
Electricity & Magnetism**

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**L2 Plant Production -
Module 1 - Lesson 2
Vegetable Production**

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**L2 Plant Production -
Module 1 - Vegetable
Production**

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**L2 Soil Science - Soil &
their Components**

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**L2 Animal Production -
Diseases in Poultry**

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**L2 Food Preparation -
Module 10 Part 1**

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**L2 Food Preparation -
Module 10 Part 2**

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**L2 Food Preparation -
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**L2 Food Preparation -
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**L2 Food Preparation -
Module 10 Part 4**

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**L2 Food Preparation -
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**L2 Food Preparation -
Module 10 Part 6**

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**L2 Food Preparation -
Module 10 Part 7.1**

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**L2 Food Preparation -
Module 10 Part 7.2**

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**L2 Food Preparation -
Module 10 Part 8,9,10**

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**L2 Agribusiness - Module
2 - Importance of
Marketing**

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**L2 English FAL - Topic 3 -
Blog Writing**

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**L2 Life Orientation -
Substance Abuse
(Zipped File, please
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**L2 Plant Production -
Unit 4 Choosing
Vegetable Crops**

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**L2 Agribusiness - Module
2 - Gaining Access to
Markets**

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**L2 Life Orientation -
Module 7 Balanced
Lifestyle**

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**L2 Life Orientation -
Module 8 Substance
Abuse**

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**L2 Life Orientation -
Module 9 Human
Sexuality**

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**L2 Life Orientation -
Module 10 Fire Safety
Measures**

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**L2 Plant Production -
Unit 4 Choosing
Vegetable Crops**

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Level 3

English L3 Topic 3

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**ECDE L3 Bipolar Junction
Transistor
VIDEO**

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**ECDE L3 Module 4&5
VIDEO**

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**English L3 Topic 4
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**L3 Electrical Principles
and Construction Topic 4**

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**L3 Marketing
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**Future Managers
Presentations for New
Venture Creation L3
Module 1**

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**Future Managers
Presentations for New
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**Future Managers
Presentations for New
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Module 3**

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**Future Managers
Presentations for New
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Module 4**

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**L3 LO - Health &
Wellbeing**

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**L3 Soil Science -
Fertilization of Soils
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**L3 Office Practice -
Cancelling & Postponing
Appointments**

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**L3 Office Practice Topic 4
Module 10**

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**L3 Transport Economics -
Macro & Micro View**

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**L3 Animal Production -
Module 2 Rearing
Practices for Lambs**

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**L3 Animal Production -
Topic 2 Wool bearing
sheep breeds**

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**L4 English FAL Topic 3 -
Argumentative Writing**

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**L3 Physical Science -
Electromagnetism**

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**L3 Soil Science - Soil
Sampling Procedures
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**L3 Animal Production -
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**L3 Physical Science -
Electromagnetic
Induction**

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**L3 Animal Production -
Module 2 Unit 3 - Rearing
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Rams**

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**L3 Life Orientation -
Module 4**

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**L3 Life Orientation -
Module 5**

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**L3 Life Orientation -
Module 6**

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**L3 Life Orientation -
Module 7**

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**L3 Life Orientation -
Module 8**

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**L3 Life Orientation -
Module 9**

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**L3 Life Orientation -
Module 10**

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**L3 Mathematics - Space,
Shape and Orientation**

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**L3 Agribusiness - Module
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Level 4

**Maths Lit L4 Module
1.2.6
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**L4 English E-Book
LADIES' DETECTIVE
AGENCY**

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**L0 Level4 Topic3 Part1
Voice File**

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**L0 Level4 Topic3 Part2
Voice File**

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**L0 Level4 Topic3 Part3
Voice File**

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**L0 Level4 Topic3 Part4
Voice File**

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**L0 Level4 Topic3 Part5
Voice File**

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**L0 Level4 Topic3 Part6
Voice File**

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**L0 Level4 Topic3 Part7
Voice File**

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**System Analysis & Design
Level4 Topic3 Lesson1**

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**Future Managers
Presentations for L4
Personal Assistance
Module 1**

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**Future Managers
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Personal Assistance
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**Construction Supervision
L4**

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**L4 Electrical Principles &
Practice - Topic 4**

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N4 Electrotechnics

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**L4 Animal Production -
Cattle Breeds**

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**L4 Personal Assistance
Module 6**

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**L4 Life Orientation Topic
3**

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**L4 Freight Logistics -
Government Procurement
Process**

**L4 Life Orientation Topic
3**

L4 Life Orientation Topic 3

L4 Marketing Communication Topic 4

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L4 Marketing Communication Topic 5

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L4 Marketing Communication Topic 6

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L4 Freight Logistics - Government Procurement Process

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L4 Transport Economics - The transport market and the Economy

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L4 Transport Operations - Capacity Planning, Optimisations and route scheduling

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Mathematics L4

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L4 Advanced Plant Production - Topic 1 - Plant Propagation

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L4 System Analysis & Design Part 1

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L4 System Analysis & Design Part 2

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L4 System Analysis & Design Part 3

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L4 System Analysis & Design Part 4

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L4 System Analysis & Design Part 5

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L4 System Analysis & Design Part 6

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L4 System Analysis & Design Part 7

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L4 English FAL Topic 3 - Reflective Writing

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L4 Agribusiness - Integrated Management of a Small Agricultural Enterprise Part 1

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L4 Agribusiness - Part 2 Answers to Assessment

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L4 Life Orientation - Module 10 Advocate Road Safety Measures

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L4 Life Orientation - Module 11 Describe Workers Rights and Responsibilities

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L4 Life Orientation SO3.3 Zipped File-Please download and unzip)

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L4 Construction Supervision - Topic 6

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L4 Agribusiness - Presentation 2 Unit 1.2

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L4 Agribusiness - Presentation 3 Unit 1.2

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Marketing Modules

MODULE 1 PRODUCT POLICY

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MODULE 2 - DISTRIBUTION POLICY

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MODULE 3 - PRICING POLICY

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MODULE 4 - PROMOTIONAL POLICY

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Microsoft OFFICE and other misc modules

CP, IP & ODP Multilevel Numbering Part 1

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CP, IP and ODP Multilevel Numbering Part 2

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PLP Mathematics - Module 2 Factorisation

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Welding - Shielded Metal Arc Welding

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Engineering NQF levels you need to become an electrician

The N1, N2 and N3 national certificates for electrical engineering are three distinct certificates that provide sufficient hours of training and learning to become an electrician registered as an electrical tester for single phase. The duration of each level is three months and completing all three levels (N1 - N3) takes one year. The student can then study further NQF levels such as N4, N5 and N6 and qualify for a National Diploma. If you would like to become an installation electrician, you will need NQF levels N1, N2, N3 and N4. A master electrician would need NQF levels N1, N2, N3, N4 and N5.

In addition, an electrician can choose to study and register for three classifications that enable them to work with different electric installation phases: Single-Phase (220 volts), Three-Phase (380 Volts) and a master electrician who is qualified to work with higher voltages and in more challenging environments.

Depending on the classification chosen above, the electrician will need to determine what documentation should be sent to the department of labour and therefore which qualifications and testing are required.

The Department of Labour (DOL) demands that you study specific NQF levels before you can register with them and obtain your wireman's license. This is why it's important to ensure you are aware of what NQF levels you must study in order to register with the DOL as the correct electrician type (Correct legal person).

The DOL requirements for registering as one of the three types of electricians are illustrated below. This will help you determine which NQF levels you need to study.

Type of electrician	NQF level required by DOL
Electrical Tester for single	NQF 1,2,3

Type of electrician	NQF level required by DOL
phase. Installation Electrician (three-phase)	NQF 1,2,3,4
Master Electrician	NQF 1,2,3,4,5

An introduction to the N1, N2 and N3 certificates

The Electrical Engineering certificates N1, N2 and N3 are designed to give students a solid foundational competency in Electrical Engineering fundamentals. The objective is the application of knowledge, typically in the form of science, mathematics, and empirical evidence to the innovation, design, construction, operation, and maintenance of structures, machines, and materials in the Electrical Engineering field.

Included in the certificates is study material that will cover the principles required to solve engineering problems such as heavy and light current. Heavy current includes the distribution of electricity, domestic wiring in civil and industrial industries. Light current includes fields such as digital electronics and industrial electronics.

Entry requirements include foundational competencies in basic math and physics. Read our guide that explains all the [prerequisite study requirements](#) before starting.

What qualification and work will I get after completing N1 - N3?

You will be able to take up employment in one of the following fields as an apprentice or student technician to gain the necessary industrial experience to be able to do a trade test. Please note that without completing the trade test and registering with the Department of Labour, you will not be able to work in the fields below.

-
- Electrical Engineering & Construction
- □ Industrial Engineering
- □ Process Control
- □ Digital Electronic Engineering
- □ Industrial Electronic Engineering

What job roles can I perform after completing the N1 - N3 certificates?

- - ☐ Wireman (Electrician) - You will still need to satisfy the Department of Labour requirements before you can become a registered electrician.
 - ☐ ☐ Assistant Electrician
 - ☐ ☐ Industrial Electronic Assistant
 - ☐ ☐ Assistant Foreman
 - ☐ ☐ Maintenance Assistant
 - ☐ ☐ Electrical Entrepreneur
 - ☐ ☐ Controller/Inspector
 - ☐ ☐ Building Trade related career
 - ☐ ☐ Acoustic Technician
 - ☐ ☐ Telecommunication
 - ☐ ☐ Power Electronics
 - ☐ ☐ Control and Instrumentation Technician
- ☐ Design Engineer

What job roles can I perform after completing the N3 - N6 certificates?

- - ☐ Wireman (Electrician) - You will still need to satisfy the Department of Labour requirements before you can become a registered electrician.
 - ☐ ☐ Electronic technician
 - ☐ ☐ Computer technician
 - ☐ ☐ Master electrician
 - ☐ ☐ Electrical Designer
 - ☐ ☐ Management & Inspection Technologist

□ □ Radio Engineering

- Radar/Satellite/Television and Microwave Technician

Are the N1 - N6 certificates accredited?

When studying through one of the recommended learning colleges, you can guarantee that your certificate is accredited by Umalusi (Education standards) and registered by the Department of Higher Education and Training (DHET). These certificates are designed to improve your skills and enhance your career prospects in your chosen industry.

How long will it take to complete the NQF certificates?

NQF Level	Duration
N1	3 months.
N2	3 months.
N3	3 months.
N4	3 months.
N5	3 months.
N6	3 months.
Total:	18 months.

Once you have completed N1 to N6 and you have also spent 24 months working within the electrical engineering industry, you are eligible to apply for a national diploma in electrical engineering. Once you have the diploma, you can decide if you would like to continue studying further at a university.

SAQA ID: 67109 - National Certificate in Electrical Engineering

The N1 electrical engineering certificate introduces you to the basic principles of electrical engineering and prepares you for further study in this field. This certificate can count towards a full national qualification as listed on the NQF. This is a foundational level certificate and part of a 3-level engineering programme. You will learn the mathematics, science and drawing skills that form the basis of all engineering trades. Learn the skills and techniques to research, design, install and test electrical and electronic equipment and supervise its manufacturing. The electrical trade involves the generation, distribution, and management of all appliances and installations that generate or use electrical energy.

[View SAQA Qualification](#)

This certificate is required by the Department of Labour when registering as one of the following legal persons (electricians):

-
- Electrical tester for single phase
- □ Installation electrician (Three phase)
 - □ Master electrician

Study topics

-
- N1 Mathematics
- □ N1 Industrial Electronics
- □ N1 Engineering Science
 - □ N1 Electrical Trade Theory

Entry requirements

-
- [Read all the prerequisite requirements](#)

SAQA ID: 67375 - National Certificate in Electrical Engineering

This N2-level certificate builds on the knowledge and skills gained at N1 level, and further prepares you for working as an artisan in the field of electrical engineering. This course is a good option if you've already completed the N1 course, and you want to learn more of the skills you need to work with electrical circuits. This certificate is part of a 3-level engineering programme.

[View SAQA Qualification](#)

This certificate is required by the Department of Labour when registering as one of the following legal persons (electricians):

- - Electrical tester for single phase
 - □ Installation electrician (Three phase)
 - □ Master electrician

Study topics

- - N2 Mathematics
 - □ N2 Industrial Electronics
 - □ N2 Engineering Science
 - □ N2 Electrical Trade Theory

Entry requirements

- - Successful completion of the electrical N1 certificate course

N3

SAQA ID: 67491 - National Certificate in Electrical Engineering

This N3 Engineering Studies course builds on the knowledge and skills gained in the previous levels, and prepares you for a career as an artisan in

the field of electrical engineering. When you study this course, you will learn more about the industry practices and administrative procedures in the electrical engineering environment. This certificate can count towards a full national qualification as listed on the NQF. This certificate is part of a 3-level engineering programme.

[View SAQA Qualification](#)

This certificate is required by the Department of Labour when registering as one of the following legal persons (electricians):

- - Electrical tester for single phase
 - □ Installation electrician (Three phase)
 - □ Master electrician

Study topics

- - N3 Mathematics
 - □ N3 Industrial Electronics
 - □ N3 Engineering Science
 - □ N3 Electrical Trade Theory or Electro-technology

Entry requirements

- - Successful completion of the electrical N2 certificate course

N4

SAQA ID: 66881 - National Certificate in Electrical Engineering

The N4 - N6 Electrical Engineering programme is a post-matric National Certificate programme. Students who complete this stand-alone certificate programme can go on to complete N5 and N6 and thereafter 18 months in a relevant workplace to qualify for the National Diploma in Electrical Engineering. Each certificate is a qualification on its own and is offered over a period of 3 months. Students can then enter into either a University of

Technology to complete a degree qualification or into a workplace that requires the qualification. The Department of Higher Education will issue you with a National Certificate once you have passed each level e.g. N4, N5, N6. After completing your work experience you can apply for your National Diploma from the DHET at the campus where you have completed your N6 qualification.

[View SAQA Qualification](#)

This certificate is required by the Department of Labour when registering as one of the following legal persons (electricians):

- - Electrical tester for single phase
 - □ Installation electrician (Three phase)
 - □ Master electrician

Study topics

- - N4 Mathematics
 - □ N4 Industrial Electronics
 - □ N4 Engineering Science
 - □ N4 Electrotechnics

Entry requirements

- - Successful completion of the electrical N3 certificate course

N5

SAQA ID: 66960 - National Certificate in Electrical Engineering

The N4 - N6 Electrical Engineering programme is a post-matric National Certificate programme. Students who complete this stand-alone certificate programme can go on to complete N5 and N6 and thereafter 18 months in a relevant workplace to qualify for the National Diploma in Electrical Engineering. Each certificate is a qualification on its own and is offered over

a period of 3 months. Students can then enter into either a University of Technology to complete a degree qualification or into a workplace that requires the qualification. The Department of Higher Education will issue you with a National Certificate once you have passed each level e.g. N4, N5, N6. After completing your work experience you can apply for your National Diploma from the DHET at the campus where you have completed your N6 qualification.

[View SAQA Qualification](#)

This certificate is required by the Department of Labour when registering as one of the following legal persons (electricians):

- - Electrical tester for single phase
 - □ Installation electrician (Three phase)
 - □ Master electrician

Study topics

- - N5 Mathematics
 - □ N5 Industrial Electronics
 - □ N5 Engineering Science
 - □ N5 Electrotechnics

Entry requirements

- - Successful completion of the electrical N4 certificate course

N6

SAQA ID: 67005 - National Certificate in Electrical Engineering

The N4 - N6 Electrical Engineering programme is a post-matric National Certificate programme. Students who complete this stand-alone certificate programme can go on to complete N5 and N6 and thereafter 18 months in a relevant workplace to qualify for the National Diploma in Electrical

Engineering. Each certificate is a qualification on its own and is offered over a period of 3 months. Students can then enter into either a University of Technology to complete a degree qualification or into a workplace that requires the qualification. The Department of Higher Education will issue you with a National Certificate once you have passed each level e.g. N4, N5, N6. After completing your work experience you can apply for your National Diploma from the DHET at the campus where you have completed your N6 qualification.

[View SAQA Qualification](#)

This certificate is required by the Department of Labour when registering as one of the following legal persons (electricians):

- - Electrical tester for single phase
 - □ Installation electrician (Three phase)
 - □ Master electrician

Study topics

- - N6 Mathematics
 - □ N6 Industrial Electronics
 - □ N6 Engineering Science
 - □ N6 Electrotechnics

Entry requirements

- - Successful completion of the electrical N5 certificate course

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Address: 52 Christo Ave, Olivedale, Randburg, 2188, South Africa

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